

## **Governance of innovation through projects: ambidexterity and integration mechanisms**

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### **ABSTRACT**

Organisations must innovate to succeed in today's rapidly changing competitive environment. A multiple-case study of six large organisations reveals how adjustments to project and portfolio governance structures aim to boost explorative innovation and provide integration between exploration and exploitation to deal with the paradoxical demands of innovation.

We draw upon concepts of paradox, contingency and ambidexterity to examine the tension between formality and flexibility and the dual-mode of governance discovered at each of the case organisations. Tensions between formality and flexibility in governance aligned with the need to maintain effective exploitative innovation while improving explorative innovation capabilities. Ambidexterity was enhanced through a dual-mode of governance at each case organisation along with mechanisms for integration between the modes.

Our findings demonstrate how both paradox and contingency perspectives work together to explore the governance of innovation through projects. We identified four integration mechanisms that improve organisational ambidexterity by embedding processes for transition from exploration to exploitation, and cross-fertilising knowledge to build innovation capability across both exploration and exploitation.

## INTRODUCTION

In an era of unprecedented change, the ability to innovate is required for sustainable success in organisations. Stable, repeatable operations and management are not sufficient; the rapid state of change requires the ability to adjust and anticipate (Crossan & Apaydin, 2010; Esterhuizen, Schutte, & Du Toit, 2012) and to incorporate an appropriate model of governance, drawing on the growing body of knowledge and experience in the governance of projects (Pitsis, Sankaran, Gudergan, & Clegg, 2014). A repeated theme in the innovation literature highlights ongoing technological, market and social changes, and the resultant escalating impetus for improving innovation capabilities (Picciotto, 2017). However, innovation introduces an increased risk to organisations across portfolios of change, project investment, management of knowledge and operations. Driven by the need to survive in an era of disruption, organisations are attempting to enhance innovative capability, thereby challenging entrenched practices and rethinking the ways that innovation is governed in projects.

The importance of governance in projects, programs and portfolios is reflected in part by the development of standards for governance (PMI, 2016), as well as by the increasing attention being paid to governance in academic literature and practice-oriented forums. However, there is no consensus on what constitutes governance, and how it can be designed to support and promote innovation. The escalating importance of project delivery in organisations, especially for innovation, further highlights the need for better understanding of the relationship between governance, innovation and success in project environments.

We conducted a multiple-case study of six large organisations, whose strategies emphasise innovation, to explore the governance mechanisms that drive innovation in projects. In this paper, we focus on the findings about the development of capabilities for ambidexterity and related changes to project- and project portfolio-level governance.

We contribute to research by demonstrating how both paradox and contingency perspectives work together to explore the governance of innovation through projects. The paradoxical tension between formality and flexibility in governance is aligned with underlying tensions between exploration activities that support radical innovations and exploitation activities that support the more common day-to-day incremental innovations. Paradox perspectives highlight the need to manage the coexistence of the opposing aspects; we find that the tensions are addressed through developing and strengthening ambidexterity capabilities through governance structures at the case organisations. In parallel, contingency perspectives operate to guide fit between project type and the appropriate governance structures. By incorporating both paradox and contingency perspectives, we embrace the tension between the two lenses as a paradox, and demonstrate advantages in moving from an ‘either/or’ mindset to embracing both perspectives to provide enhanced insights (Smith & Lewis, 2011).

Our identification of four integration mechanisms is a contribution to practice that may also inspire further research. The paradox perspective emphasises that organisations need to manage coexistence of the opposing aspects, and seek ways to navigate the space between and strengthen performance through the combination of both aspects (Cao, Gedajlovic, & Zhang, 2009; Jansen, Tempelaar, Van Den Bosch, & Volberda, 2009). We propose that the four integration mechanisms identified in our study improve organisational ambidexterity by cross-fertilising knowledge to build innovation capability across both exploration and exploitation, and by ensuring smooth transition between exploration and exploitation.

## **LITERATURE REVIEW**

This literature review starts with a brief overview of innovation and related organisational and project management concepts. We then introduce governance and explore the literature at the intersection of innovation, governance, and project management. We

include literature from project, program and portfolio perspectives to explore both single- and multi-project management and governance. The section concludes with our research question and the specific focus for this paper.

## **Innovation**

Innovation is important to the economic health of the developed world; up to half of all GDP growth can be attributed to innovation (OECD, 2015). Governance has an important role to play in creating an environment that fosters rather than limits innovation, (Picciotto, 2017).

Innovation is both a process and an outcome. It involves “production or adoption, assimilation, and exploitation of value-added novelty” (Crossan & Apaydin, 2010, p. 1155) to produce outcomes such as new or improved products and services, or to create or improve production or management methods in organisations. The OECD’s (2015) definition of innovation has been broadened beyond the outputs of research and development or technology to include assets with a knowledge base, social and enterprise innovation and business models, as previously defined by Crossan and Apaydin (2010). We adopt a broad view of innovation and define it simply as ‘harnessing novelty to create value’.

The most suitable project management approach will be contingent on the project type and goals (Joslin & Müller, 2015). Innovation projects vary considerably; one of the primary measures of difference is the degree of innovation. Innovation may be delivered in gradual increments or it may be done in a radical fashion, resulting in major paradigmatic leaps or entry into entirely new markets (Griffin, Price, Vojak, & Hoffman, 2014). Incremental innovation is relatively low-risk and is often considered ‘exploitative’ because it follows established processes and exploits existing capabilities. Although it is higher risk, radical or ‘explorative’ innovation is also required in most industries and organisations to extend capabilities and to develop long-term competitive success (Benner & Tushman, 2003; Danneels, 2002).

The degree of innovation varies across industries, and what may be considered radical or explorative in one industry may be considered incremental or exploitative in another. High-risk and highly regulated industries such as the health sector are more likely to take incremental steps (Campbell & Barnett, 2004; Griffin et al., 2014).

In most industries long-term value creation is best achieved through pursuing both incremental and radical innovation projects (Junni, Sarala, Taras, & Tarba, 2013; O'Reilly III & Tushman, 2013). However, incremental projects that exploit existing capabilities and radical projects that explore new areas require different, potentially conflicting, management approaches (Benner & Tushman, 2003). To innovate successfully organisations must develop specific capabilities for ambidexterity (the ability to simultaneously manage both exploration (radical or discontinuous innovation) and exploitation (incremental or day-to-day innovation)) (Jansen, Van Den Bosch, & Volberda, 2006; Tushman & O'Reilly, 1996).

### ***Inhibitors and enablers of innovation***

Factors that influence innovation range from the 'macro' (policy, regulation and economic factors) to the 'micro' (the preferences, culture, and skills of individuals). We focus in this study on an intermediate ('meso') level and explore literature on how organisational management and governance factors influence innovation. Effective leadership, a supportive environment and knowledge sharing are regularly highlighted as enablers for innovation (see for example Esterhuizen et al., 2012; Lin & E. F. McDonough, 2011; Svetlik, Stavrou-Costea, & Lin, 2007; van der Panne, van der Beers, & Kleinknecht, 2003). Cultural factors such as transparency, incentivisation, strategic focus and an open and sharing environment enhance innovation at the organisational level (Lehrer, Tylecote, & Conesa, 1999; Müller, Martinsuo, & Blomquist, 2008; Unger, Rank, & Gemünden, 2014; van der Panne et al., 2003). Appropriate governance that links knowledge and resource pooling is needed to support innovation (Potts & Kastle, 2017).

### ***Projects, programs, portfolios and innovation***

Project management has a special relationship to innovation management in that most innovative activities are delivered through projects. Project processes for innovation often include a gated process designed to support the exploration of innovative ideas at the front end, with increasing levels of oversight as funding increases during the project lifecycle (Cooper, 2008; Kock, Heising, & Gemünden, 2016). Program- and portfolio-level management approaches take a higher view and manage the synergies and balance across multiple projects (Kock et al., 2016). Portfolio-level management and governance aim to ensure the innovation portfolio meets strategic objectives, with the right mix of projects to meet organisational aims (McNally, Durmuşoğlu, & Calantone, 2013).

### **Project, Program and Portfolio Governance**

Governance is the activity related to decisions, advice and oversight. The ‘four Rs’ – responsibilities, routines, roles and relations – reflect the contractual, administrative and social aspects of governance (DeFillippi & Sydow, 2016). “In its most general form corporate governance is defined as the set of rules, (stakeholder) relationships, systems and processes by which authority is exercised and controlled in organizations. Corporate governance influences how organizational objectives are set and achieved” (Biesenthal & Wilden, 2014, p. 1292). Project governance functions provide the ‘what’, while project management functions address the ‘how’ (Project Management Institute (PMI), 2016). Governance is generally viewed as a high-level responsibility, with governance practices cascading down through organisations levels. There is no ‘one size fits all’ in governance; each organisation develops a unique approach for governing projects from ideation through to the delivery and eventual realisation of value (Project Management Institute (PMI), 2016).

Research on the relationship between governance, project management, and organisational success has escalated in recent years (see for example Crawford et al., 2008; Joslin & Müller, 2016; Pemsel, Söderlund, & Wiewiora, 2018; Pitsis et al., 2014). Project governance comprises the value systems, responsibilities, structures, processes and policies that enable projects to achieve organisational objectives. These include methods for reporting, project selection and the definition of project processes. As highlighted in the PMI publication *Governance of Portfolios, Programs and Projects: A Practice Guide* (2016), governance is critical to project outcomes and there is a need for more research to help inform the development of relevant standards.

Context matters in project governance. Successful project outcomes rely on a two-way alignment between governance type and project context (Muller, Martinsuo, & Blomquist, 2008; Too & Weaver, 2014). Governance choices affect culture and team performance in project environments (Toivonen & Toivonen, 2014), and also affect the choice of project management approach (Joslin & Müller, 2015). The appropriate governance approach depends on the type and context of the projects and their environment (Müller & Lecoivre, 2014; Too & Weaver, 2014). Informal governance mechanisms are more useful than formal mechanisms for knowledge governance in project-based organisations (Pemsel & Müller, 2012). Further research is called for to meet the governance challenges created by the complexity in project environments (Ahola, Ruuska, Artto, & Kujala, 2014).

Governance is a central factor in portfolio management success. Portfolio governance is more than oversight and monitoring of active projects; it is the end-to-end process from ideation, selection, development to ultimate delivery, deployment or commercialisation (Datta, Reed, & Jessup, 2012). Research shows that governance has a strong role to play in ensuring the appropriate level of flexibility and to ensure portfolio processes are suited to the context (Koh & Crawford, 2012). Indeed, portfolio-level activities and structures can overlap with

governance frameworks, and some authors to refer to ‘portfolio management governance’ (Urhahn & Spieth, 2014) to emphasise the strategic and organisational impact of portfolio-level functions.

Research has identified relationships between governance and portfolio management. A study of portfolio steering committee roles at three case organisations found a link between portfolio governance design factors, such as the frequency and duration of portfolio meetings, the performance of the committee and the level of emphasis on the three functions of decision making, communication and consolidation, and negotiation (Mosavi, 2014). A survey of 183 firms that explored portfolio management governance, innovation and success revealed that higher levels of formality and explicitness and strong information support in portfolio management governance support higher levels of both market and technological innovativeness, while decision transparency was linked with market (but not technological) innovativeness (Urhahn & Spieth, 2014).

At the project level, much of the literature emphasises the role of governance in creating an environment for ethical and responsible behaviour, although the role of politics and the influence of complexity are also recognised (Pitsis et al., 2014). Norms of behaviour and transparency are set through governance procedures and can help to improve the quality of project work (Pinto, 2014). One study has shown how governance and organisational learning work together to ensure that project decisions are made in an open and culturally acceptable manner, and that governance frameworks for public projects provide structures and set expectations of ethical behaviour (Williams, Klakegg, Magnussen, & Glasspool, 2010). Other studies at the project and program level emphasise the role of governance in the management and allocation of risk (see for example Abednego & Ogunlana, 2006).



### ***Governing projects for innovation***

Project governance processes are important components of innovation success (van der Panne et al., 2003), and the project structures themselves often need to be innovative to best support innovation projects (Ben Mahmoud-Jouini, Midler, & Silberzahn, 2016; Midler, Killen, & Kock, 2016). A study of processes in 132 innovation projects in 72 organisations revealed a relationship between the type of innovation project and the approach to managing uncertainty and flexibility; such flexibility still requires structure and oversight, but also means that different governance structures are needed for different types of innovation (Salerno, de Vasconcelos Gomes, da Silva, Bagno, & Freitas, 2015). While standardised approaches are beneficial for repetitive and repeatable endeavours (Davies & Brady, 2000), such approaches can inhibit innovation due to the unique and unexpected requirements (DeFillippi & Sydow, 2016). Indeed, there is an inherent conflict between formality and flexibility in governance processes, especially as they relate to innovation (Andriopoulos & Lewis, 2009). Contingency approaches aim to resolve such conflict by identifying the best approach for a given situation or context, while approaches based on paradox theory acknowledge the limitations of a binary choice and seek to find ways to manage such tensions by simultaneously supporting both sides (Smith & Lewis, 2011). The tension between formality and flexibility in project approaches is closely related to the ambidexterity concept and the tension between exploitation and exploration (Andriopoulos & Lewis, 2009); indeed, effective project portfolio management can resolve paradoxes and manage ambidexterity (Petro, 2017), and project management offices can be viewed as ambidextrous entities when enabling both control and flexibility (Aubry & Hobbs, 2011).

In summary, the literature highlights the importance of innovation, and the role of governance for successful project and organisational outcomes – in particular the importance of tailoring the governance approach to suit the context. However, few studies have

investigated the relationship between project, program and portfolio governance and innovation. Our research aims to provide further understanding by exploring the research question:

*What governance mechanisms drive innovation in project, program and portfolio management?*

The research reported in this paper presents a subset of the findings from a wider study on the above question. One of the few studies on governance for innovation in project environments has found that formality and explicitness in portfolio governance correlate positively with product innovation, and subsequently with organisational performance (Urhahn & Spieth, 2014). However, other studies at the project and portfolio level emphasise the importance of flexibility for innovation (Kock & Georg Gemünden, 2016; Sethi & Iqbal, 2008). This raises questions as to whether and how flexibility and formality can work together, and what mechanisms are at play in the relationship between governance and innovation in project environments. This paper focuses on emergent findings related to the tension between formality and flexibility in the governance of innovation, and the ways that project- and portfolio-level governance addresses this tension.

## **METHOD**

This study examined governance as it relates to innovation in project settings, including both single project and multi-project (portfolio and program) perspectives. We developed a semi-structured interview guide, based on the findings from our literature review, and used this in our multiple-case study exploring previously untested areas (De Massis & Kotlar, 2014). Our study was designed to reveal connections, develop understanding and to support theory building, and multiple-case studies were ideal for providing a robust and varied set of empirical

evidence and for supporting the development of theoretical explanations (Herriott & Firestone, 1983; Yin, 2014).

We used interpretivism as the philosophical underpinning of our study because we were investigating a real-world phenomenon where knowledge is socially constructed (Creswell, 2003; Mackenzie & Knipe, 2006). The interpretivist paradigm guides the researcher to allow “the concepts of importance in the study to emerge as they had been constructed by the participants” and to “opt for a more personal, interactive mode of data collection” (Mertens, 2005, p. 13).

Our research instrument, the semi-structured interview guide, included open questions to help us capture a wide range of information. Follow-up questions were used if relevant and/or if prompts were needed. The interview guide was evaluated by researchers and practitioners and then pilot tested in our first case. Findings from the first case were used to refine the protocol, and we continued to review the process throughout the case investigations in order to help probe emerging themes. This continual evolution and refinement of the research instrument mirrors innovation techniques; in order to identify and incorporate emergent themes we took advantage of the opportunity of iteration, reflection, testing and adjustment during the exploratory study.

Building on the findings from previous studies about using case-based research to support theory building (Eisenhardt, 1989), we used theoretical sampling to select six case-study organisations from diverse industry sectors. This approach ensured data variety and richness, and facilitated a broad basis for the analysis and opportunities to observe contrasting results (Yin, 2014). Potential participant organisations were first analysed through publicly available information – company websites, annual reports, newspaper articles and other media – before the final six case organisations were selected based on size, innovation strategy and access. All were large established organisations that emphasised innovation as part of their

corporate strategy and had a turnover of A\$1 billion or more (approximately US\$750 million). Five of the organisations were based in Australia, and four had extensive international presence. Finally, all organisations had significant operations and diverse project professionals in Australia, with whom we could conduct the face-to-face interviews.

The unit of analysis is the governance of innovation at the single project and multi-project (program and portfolio) levels. Our data collection aimed to capture how innovation was viewed and represented in the organisation, and what processes, structures and policies were used to govern innovation through projects. Data were also collected on related aspects such as the drivers for innovation, details of the interviewees, and their impressions on the effectiveness of the governance approaches.

A ‘main contact’ at each organisation assisted us identify potential interviewees, who were selected to represent a range of perspectives on the governance of innovation. Semi-structured interviews were conducted with between four and six people at each organization, for a total of 28 interviews. Average length of each interview was just under one hour (56 minutes) with total interview time of over 26 hours. Interview data were complemented by information from internal policy and governance documents when available as well as the publicly available information.

Interviews were recorded and transcribed, any identifying information was replaced with codes, and the data were analysed using NVivo qualitative data analysis software. We started the coding process using an initial list of anticipated themes drawn from findings of previous studies, augmented the coding when emerging themes were detected, and re-visited the transcripts already coded to add any relevant responses to the new codes (Miles, Huberman, & Saldana, 2014). We coded on a multi-level basis, with seven primary nodes and 47 total nodes. Primary nodes captured input on high-level themes such as ‘Innovation’, ‘Process’ and ‘Evaluation of Effectiveness’, whereas the next-level nodes included detailed themes such as

‘Roles and Responsibilities’ and ‘Dynamism (environment)’ under Innovation, ‘Flexibility’ and ‘Project termination’ under Process, and ‘Stifling innovation’ or ‘Improvement of ideas’ under Evaluation of Effectiveness. To ensure consistency in coding and to avoid bias, a research assistant who was not involved in the interviews did the main coding of the interviews, with oversight and validation by other members of the research team. The initial themes were identified and refined by the research team and provided as input to the coding process. All data were analysed across cases to identify themes and patterns, with particular attention paid to discovering emergent themes and exploring theoretical explanations (Yin, 2014).

**Table 1: Case organisations and data collected**

Org Name	COMM	UTIL	FIN	TECH	SYS	ENERGY
Industry	Comms and internet	State owned Utility	Financial	Technology development	Technology systems	Privatised Utility
Interviewees	C1 – C5	U1 – U5	F1 – F4	T1 – T4	S1 – S4	E1 – E6
Roles of interviewees (refer Table 2)	2F, 3P, 2F+P, 2F+P, 3F	3F, 3F, 4P, 2P, 2F	3T+2B, 2P, 2T, 2B	2T+P, 3B+P, 3B+P, 2B	3F, 1F+B+T, 3F, 2B	3B, 3B, 3T, 2T, 3B, 3F
Average interview length	55 minutes	70 minutes	60 minutes	60 minutes	50 minutes	44 minutes

**Table 2: Generic role descriptions for interviewees**

Organisational level code	Function descriptor code
1 CEO’s Leadership Team (CFO, CTO, CIO, Business unit head)	‘B’ – a business unit (P&L accountabilities)
2 Direct report to CxO (Senior Technology manager, portfolio manager, head of ePMO)	‘F’ – Functional unit, supporting business units
3 ‘Head of’ or Manager (Technology Manager, Program manager)	‘T’ – Technology unit, such as IT or R&D
4 Professional role (Project manager, engineer, other professionals)	‘P’ – Portfolio, Program, Project

Table 1 identifies our case organisations, industry, roles of interviewees and number of interviews completed. Interviewees’ role descriptions were coded, based on two dimensions

(Table 2): their level in the organisation, from a reporting perspective (numbers 1–4), and their category from a function perspective (letter descriptor).

The categorisation in Table 2 maintained interviewees' and organisations' anonymity yet allowed comparison across the case study organisations. Some roles that span levels or function categories were assigned two or three numbers or letters; for example, a mid-level technology manager would be coded as 3T, while a portfolio manager for a business unit would be coded as 2B+P. The majority of the interviewees were senior executives and managers (levels 2 and 3). The interviewees represented a diverse range of experience and had worked with the case organisation for an average 8.6 years.

## **Case overviews**

In this section we provide a brief overview of the six selected case-study organisations. To maintain confidentiality, we purposely use generalised descriptions of the industries represented, and we do not use the organisations' names or the specific terms they use for their innovation initiatives. We refer to a special space for internal innovation as a 'lab', a 'hub' refers to an innovation initiative designed for networking and sharing ideas, and we refer to larger exploratory development groups as innovation 'units'.

**COMM** is a publicly listed international organisation in the highly dynamic and increasingly competitive communications and internet industry, headquartered in Australia. The organisation's structure includes several business units, each with a level of governance and accountability under an enterprise umbrella. Corporate and project-level governance is mature and centralised, and innovation is embraced at many levels; initiatives include an innovation lab for internal ideas, an innovation hub that embraces partnerships, and an innovation unit responsible for planning technologies for the next 3–5 years.

Competitive pressures and rapidly shortening product lifespans have prompted COMM to shift its focus from technology and physical assets to exploring solutions for customers' needs. This new direction has resulted in changes in organisational structure, increased partnering with external organisations, independent businesses to pursue particular goals, and the investment in and purchase of other organisations.

**UTIL** is a large Australian utility owned by the state government, with a formalised corporate governance structure that is strengthened by the influence of regulators and industry safety bodies. Project-level governance is also well established. In response to increased service-level expectations from customers across utility, financial services and other service industries, the threat of competition, as well as direct feedback via customer and market research, UTIL has expanded its strategy and focus to improving customer experience, satisfaction and perception of value provided.

Major cultural and structural shifts in UTIL's outlook have resulted in changes to the divisional structure that reflect the emphasis on customers and markets. The restructure has increased opportunities for collaboration and innovation, with recent changes including new initiatives for customer experience and digital engagement. Interviewees reported feeling more innovative than most in their industry (albeit one not known for its innovation) and more engaged with innovation than in the past.

**FIN** is a full-function publicly listed Australian financial services organisation, engaged in retail, business, institutional banking, wealth management and insurance businesses, with global operations. The industry is dominated by four major players, in a highly regulated environment.

The organisation invests substantially in innovation, with a centralised unit for process and product innovation, and a stand-alone technology innovation incubator that invests in external technology start-ups and technologies. All projects require a valid business case before

approval, with metrics strongly focused on financial justification rather than innovation outcomes. However, divisions, and groups within divisions, carry out their own innovation initiatives, and the lack of centralised oversight results in multiple occurrences of similar activities without coordination or collaboration. Even the Enterprise PMO does not have the remit for overseeing innovation across the organisation.

**TECH** is a publicly listed global organisation from the technology sector founded and headquartered in Australia. A market leader, it places strong emphasis on its R&D capability. While the global headquarters in Australia, the sales, services, development and manufacturing for the global market are spread among regional headquarters and several other locations. The business has grown steadily over the past couple of decades, and continued growth is likely.

Structural changes to TECH over the years have been influenced by the growth in the company and the development of a more diverse portfolio of solutions. Several R&D groups focus on product development activities, and one group deals with more long-term advanced research. In the past two to three years TECH has strengthened and centralised project governance; previously overseen at a department level. Overall, TECH interviewees felt that their innovation capability was high, and their ability to support innovation was enhanced by their processes.

**SYS** is a global publicly listed organisation headquartered in Europe, with substantial divisions in Australia that are the focus of this study. With operations in more than 50 nations, SYS is an industry leader that provides solutions in specialised markets and applications across a number of technology-enabled industries. National government operations provide about half of SYS's customer base. Growth and diversity have been achieved primarily through acquisitions of specific technology-focussed companies.

Changes in the past three years reflect the way SYS approaches and promotes innovation across the whole organisation rather than just in the technical areas. Formal and



rigid processes still dominate project governance; however, as part of the increasing emphasis on explorative innovation, the organisation operates a large innovation group and several smaller initiatives and ‘spaces’ for innovation.

**ENERGY** is a publicly listed vertically integrated energy producer, distributor and marketer, and one of the largest energy companies in Australia. Reflecting the high level of change across the energy industry, innovation is a priority at ENERGY, driven by the need to respond to and leverage a carbon-constrained environment and economy and the continued shift to a more customer-centric organisation. In recent years, ENERGY has put considerable effort into improving its innovation processes.

The company’s formal structure has major divisions for business areas, operations, functional areas and organisation transformation. Each division has an executive general manager who reports to the CEO. The importance of cross-organisation change to strategic success is reflected by the creation of a division for organisation transformation, which focuses on making the organisation more agile and adaptable. Consequently, innovation in both thinking and doing is seen as a core competency. Each division also has innovation initiatives underway, and several dedicated groups or spaces are targeting innovation outcomes.

## **FINDINGS**

Two overarching themes emerged from our findings. First was evidence of initiatives to improve innovation capability by developing ‘organisational ambidexterity’ through a ‘dual’ mode of governance in each of our cases studies. Although we did not set out to explore ambidexterity, and the term was not used in the interviews, our findings provide insights and evidence on the development of governance structures for ambidexterity that include mechanisms for integration between exploration and exploitation. Second, and closely aligned

with our findings on ambidexterity, were our findings on the paradoxical tension that exists between formality and flexibility in the governance of innovation.

In this section we summarise our findings from the thematic analysis of the data: the impetus for innovation at each organisation; the tension between formality and flexibility; how context guides the governance of innovative projects; and ways that the organisations manage and integrate a dual or two-sided innovation approach to better manage both exploration and exploitation.

### **Findings on relevant themes**

#### ***Environmental dynamism as a major driver of Innovation***

Our cases were selected because their strategies emphasised innovation, and we find that the main driver for innovation in each of the case organisations is an increasing degree of external change. The research participants discussed unprecedented levels of environmental dynamism in areas such as customers and markets, technologies, regulations and politics.

Interviewees from FIN explicitly link their focus on innovation to the intense competition:

*We have a strong focus on innovation in technology, we have to. Our competition is fairly intense, and there's the continual threats. (F3)*

and on the changes in the environment:

*There are constant changes required with this business, especially when you think about [regulatory reform program] and other regulatory changes ... the innovation in the technology. (F2)*

*The increasing competition in the market ... was going to force us to be innovative. (F2)*

An unprecedented level of change was mentioned by most interviewees, including those from COMM:

*It's the highest rate of change of anything that I've been involved in. So, right now, the rate of change in the market, in the whole environment. (C5)*

*There's a recognition now that technology life-cycles are measured in months, not years these days. The need to get products to market is a matter of days and weeks as opposed to weeks and months. (C1)*

*Our teams can't their eye off the external market anymore. (C4)*

TECH must deal with long regulatory processes for some products. This dampens the rate of change, however:

*The pace certainly ... has gone up exponentially. Part of that is the competitive landscape, part of it is the fact that just the way the world is moving ... faster and faster innovation cycles, that pull [even slower areas] to start moving faster and faster. (T4)*

Even at UTIL, which operates in an industry that “*is not very dynamic ... it's the nature of this business*” (U1), the increasing degree of change and the influence of technological change is emphasised:

*Expectations, budgets, demands, all that stuff is changing. At the same time, you've got technology capabilities that are out there in the market, which are really opening up a whole new world of ways of doing things that simply didn't exist a couple of years ago ... but that requires a huge shift ... a mind shift change. (U3)*

Overall, the findings at each of the case organisations emphasise the importance of innovation, driven by external changes in areas such as customers, markets, technology and policy. This drive to innovate is reflected in the further themes that reveal the tensions inherent to governing innovation, and the approaches being taken by the case organisations.

### ***Formality versus Flexibility***

Our findings highlight the tension between formality and flexibility when trying to govern innovation. Finding the right balance is a driver for many of the changes in governance;

while organisations recognise formality and control as essential for governing projects, our findings reveal repeated concerns that formal governance may stifle innovation. Flexibility and distributed decision making are thought to better support innovation. However, the large case study organisations each have a legacy of centralised, formal, multi-level processes for much of their project activity. This is thought to cause problems for innovation – and comments such as “*centralisation kills innovation*” (F4) were repeated across the study. Especially for lower risk areas:

*We don't need a big weighty, massive governance to wade through. It'll stifle innovation in my mind. [However], no governance stifles innovation as well because no one knows how to make any decisions about anything. To me there's a sweet spot where it's just right. You've got just enough to make decisions that are rational, consistent, and in the overall interests of the alignment or the business objectives* (U2)

Others noted a desire to hit the ‘sweet spot’ of just enough governance, a balance:

*[A] streamlined governance framework to enable innovation projects to fast track their way through a process whilst maintaining some type of rigour* (C2).

The desire for maintenance of ‘some type of rigour’ while encouraging innovation is the essence of the tensions between formality and flexibility in governing innovation that were repeatedly mentioned. Some interviewees felt that ‘sweet spot’ or the right balance can be elusive because:

*There's a disconnect between wanting to be highly innovative and low risk at the same time.* (F2)

The relationship of risk to innovation and the quest to “*getting the mix right, how much risk are we willing to accept to drive innovation*” (E4) is a repeated theme across all of the case organisations, with. Comments on risk are detailed further in the subsection on context dependency.

Another interviewee discussed a tiered system of governance that was used to address the tension and better support innovation. Decision making is delegated to relevant areas that:

*... have freedom to innovate and grow in their own right. We carve the money out to them, they put in place their own governance, and then they run that with a lot less of a corporate governance overlay. (C1)*

Another comment represents repeated goals to remove barriers to innovation:

*We are looking at how do we streamline approvals ... how do we make sure that those sorts of roadblocks that are within our control are not the things that are slowing down project teams from delivering. (E3)*

Overall, interviewees at five of the six case studies felt that some of their governance processes were hindering innovation, and expressed a desire to adjust the balance and/or discussed ways they are or have been adjusting their governance to better support innovation.

The exception was TECH, where interviewees felt that their governance processes were appropriate and that “*what we do actually fosters innovation*” (T1). The governance at TECH is more mature than most, with longer standing structures for innovation in an organisation that has always depended on innovation projects. While there was a high degree of satisfaction with the governance, it was not a situation of ‘set and forget’; the innovation governance was reviewed and adjusted in an ongoing basis. The comment below links risk to innovation processes, and indicates that TECH may be close to the ‘sweet spot’ of the ‘right’ level of governance:

*I don't think the [formal] governance structure hinders innovation. However, it does make us think about the level of risk that we're taking on in a project ... [the decision-making board is] more about the status of projects and how we're tracking, not so much about the innovation. The governance in the early stages is more about the innovation ... [to support] innovation and kicking off new technology. (T3)*

However, despite satisfaction with the governance and the feeling that their governance supports innovation, a degree of tension is still evident and the ‘right’ degree of flexibility is hard to achieve. Governance that encourages and promotes flexibility is meant to enhance innovation, but may have negative consequences for longer term stability that is needed for the innovation projects at TECH:

*Everything comes with two sides, right? So you want to be agile, so you want to be able to start and stop things. But ... R&D organisations ... like ours need more long-term consistency so that once things start going, they can continue. And so it's that conflict between being agile and having more of a committed road map. (T4)*

Interviewees noted the tensions that create challenges in navigating and finding the ‘sweet spot’ between formality and flexibility in the governance of innovation. In our discussion in the next session we link this theme to concepts of paradox and ambidexterity that help to explain the tensions and the approaches to resolve the conflict.

The goals to improve and change the governance to better support innovation are often related to context; the ‘right’ process or approach depend upon the context. The following subsection summarises comments on context factors that are linked with governance choices.

### ***Context dependency***

Context was repeatedly highlighted as a factor that guides the development of governance approaches and processes for supporting innovation projects. Context factors such as budgets, risks, politics and strategic importance are used to determine the ‘right’ level and type of governance. Project size (as measured by proposed cost) is the most common context factor that guides innovation governance. The organisations’ formal tiered governance processes used project cost as the main or only factor to determine the appropriate decision-making body. Generally, endorsement is first done in a lower-level local decision-making team, and then:

*If it goes above a certain [cost] threshold, it needs to go to a [decision making group with higher delegated authority] ... And then, if it's over a third threshold, it goes to a third one which is a CEO leadership team. (C5)*

*Each business area ... each manager has their own delegation. They have budget that they work within. (U3)*

The degree of innovation is also used to guide innovation governance. For example, in TECH the degree of innovation is combined with business impact, project timeframe and other measures to “*categorise the level of management process in light, medium or heavy*” (T2) and prescribe the type of project management approach:

*The light [project management approach] combines all of the planning into a single document, then off you go and execute. The heavy one [used for more highly innovative projects with longer timeframes] makes you create a regulatory plan ... and a number of other procurement plans. (T2)*

As already noted in several comments in the previous theme on contingency, risk is one of most common contextual factors influencing governance of innovation. Our findings reinforce the influence on governance from the well-established relationship between innovation and risk; the more innovative a project, the higher the level of risk. Managing that risk can be difficult:

*More risk should probably mean more governance, more control, more policy procedural stuff. (U2)*

Another interviewee notes the relationship, and the difficult balance in managing risk innovation projects in a risk-averse organisation, citing the need for balance and once again revealing the underlying tensions inherent in managing innovation:

*When we talk about innovation, high innovation, and risk tend to be aligned ... There's that balance between being highly innovative, pass-fail ideas, those sort of things, versus the [risk-averse] culture of the organisation and the customer base. (S3)*

In addition to budget and the degree of innovation and risk, many other measures are used to select the right level of authority for decisions. For example, projects of strategic significance or those that could attract media attention are escalated beyond the level indicated by their budget at UTIL.

Choices of governance and innovation methods are sometimes linked to innovation philosophies and project methodologies. Organisations may adopt an 'agile' approach, or implement 'design thinking', or they may follow a specific project management approach such as Prince2; these choices are influenced by context, and in turn influence the governance of innovation projects.

One interviewee warned of the dangers of following an overarching methodology too narrowly and without considering specific contextual factors. When discussing the benefits of incorporating lean and agile principles, the interviewee warned about losing sight of context:

*Where the danger kicks in, in my mind, is when people start to become quite religious about it. So, my view is be agnostic, apply the right methodologies for the right circumstances ... it's about leadership that is more adaptive, leadership that is more open to different thinking, recognising risk and return, the fact that not everything pays off. That then, creates a more genuine, innovative [environment]. (C1)*

In UTIL, the innovation 'lab' employs design thinking and uses a scoring system to select projects. Size relates to budget, impact on customer areas, level of complexity, degree of innovation and other factors:

*[Projects that score in the mid-range] are good opportunities for us. They're sort of like Goldilocks. Not too big not too small, just right. (U2)*



The recognition that there are different types of innovation projects, and that tailored processes and levels of governance will best support innovation projects, have resulted in new initiatives that sit alongside the traditional formal approaches at all the organisations, creating a dual approach as discussed in the next subsection.

### ***Dual governance approaches and integration mechanisms***

In the large established organisations in our case studies, the need to execute projects repeatedly within financial and resource bounds has led to mature processes for the management of day-to-day exploitative innovation projects; however, less attention has traditionally been paid to developing capabilities for explorative innovation. All the organisations have made significant adjustments to their governance in recent years in response to the increasing emphasis on innovation, and the widening definition of innovation.

Changes to governance in response to the impetus to innovate include reviewing and evolving existing processes (for example, by creating tiered decision responsibility that includes decision authority closer to the level of the project) and reorganising organisational structures (for example, to better reflect customer-centric perspectives or to elevate and consolidate existing innovation functions). New innovation governance structures include initiatives such as ‘labs’ with dedicated spaces for explorative innovation, or ‘hubs’ designed for networking and idea sharing among groups or with external parties, or creating or restructuring larger innovation ‘units’ for explorative technological development.

These new innovation initiatives sit alongside the other approaches at the case organisations, resulting in a two-sided approach to innovation: incremental innovation that exploits existing capabilities, and a second, often newer, side that employs specific innovation approaches designed to explore new ideas. The two sides are explained by FIN and COMM:

*So, I guess you have two models ... the program [the new units for driving explorative innovation] are very into sharing and knowing what each area is doing, whereas at the Group level it's more a siloed approach [to incremental innovation]. (F2)*

*[The new innovation initiatives] still are accountable ... but they don't come through the normal governance channels. So, they have a bit more freedom to be iterative, reactive, proactive, responsive, ... So, we operate two governance mechanisms ... It's not one-size-fits-all. (C1)*

TECH, ENERGY and SYS have had structures with separate units and processes to support 'explorative' and 'exploitative' innovation for many years, whereas the creation of separate innovation initiatives is relatively new at the other case organisations. During the past two to three years, each of the case organisations has introduced multiple new innovation initiatives, along with adjustments to their existing explorative approaches. For example, TECH raised the profile and improved coordination of explorative efforts by consolidating several existing initiatives into one organisation-wide unit, with direct reporting to the top executive level. The popularisation of 'design thinking' in recent years is reflected in new initiatives at COMM, UTIL, FIN and ENERGY – these organisations talk about 'human centred design', 'empathy', customer experience, fast failure.

UTIL interviewees discussed the thinking behind their investments in a new innovation lab and an innovation hub:

*The point of the [innovation] Lab was very much around saying, 'Sometimes we're a bit slow to respond if someone's got an innovative idea. So, let's create a really good, quick, snappy forum with people that will make a decision'. (U5)*

*We go into [the Lab] without mentioning the dirty word innovation. [We apply] human-centred design and design thinking to customer problems, design challenges, that sort of stuff. Those tools can be applied in numerous different contexts. (U2)*

*It's happening in other areas as well [such as in the innovation Hub that brings people together]. Get them all together and have a single point of contact and have them actually working interactively with one another, not sitting in different silos. (U3)*

We found that important governance structures were instituted that integrated the dual modes of exploitation and exploration, enabling organisation-wide benefits. Table 3 summarises four types of integration mechanisms identified at the case organisations.

**Table 3: Mechanisms for integration between exploitation and exploration**

Type of integration	Examples
1. Transition – clear path facilitates transition from exploration to exploitation when appropriate	Business case development and TRL metrics guide transition from exploration to exploitation. A full business case is detailed for transition at UTIL and SYS, achievement of appropriate technology readiness level is required in organisations with established units for the development of new technologies (TECH, ENERGY)
2. Knowledge sharing – innovation process experts guide others through innovation initiatives	Employees who are experts in innovation processes such as design thinking or agile share knowledge with employees across the businesses through innovation initiatives (multiple examples, highlighted at COMM and SYS). Hiring new staff brings in and helps build innovation capabilities (FIN, UTIL, TECH, ENERGY). External consultants bring knowledge via workshops and other activities (FIN, UTIL, SYS).
3. Cross-fertilisation – through the movement of people.	Employees share time between innovation labs and business units, innovation team membership is dynamic (multiple examples, emphasised at UTIL and ENERGY).
4. Communication – creating awareness of exploration to stimulate integration.	ALL ORGANISATIONS report activities that bring awareness of exploratory innovation initiatives to the wider community such as showcases, hackathons and innovation ‘challenges’. These activities aim to stimulate further innovation (commercialisation/exploitation opportunities and/or further exploration).

These four integration mechanisms enabled transition from exploration to exploitation, sharing of the learning from the explorative innovation initiatives, cross-fertilisation through

the movement of people, and communication and awareness raising activities that raise the visibility of explorative innovation and inspire and involve others.

Mechanisms for knowledge sharing and communication are demonstrated in discussions on innovation initiatives at ENERGY:

*... [we] really try and do things in an innovative way more and more frequently. For example, large scale, and smaller one day hackathons ... launching a CEO innovation challenge, really trying to tap into the crowd and unleash the IP of the organisation.*  
(E6)

*There's a whole range of initiatives underway educating employees around the use of different tools and methodologies for collaboration and problem solving. I see that as a core pillar of our innovation program.* (E5)

As a complement and counter balance to the usual strict governance processes, SYS set up an innovation unit as part of R&D that focuses on diversity and inclusion and is explicitly designed to challenge existing thinking. Employees choose when to work in the innovation unit, and when to work in their core business role, demonstrating integration through cross-fertilisation and movement of people:

*The team will be dynamic on who's in, who's out, for example. They tend to decide that themselves...They set up their own rules of engagement as I call it, their own way of working. We give them free reign to design that.* (S3)

Transition of projects from exploration to exploitation is essential for developing ideas into commercial offerings and generating revenue. Governance mechanism for the transition of projects employed checkpoints on specified contingency factors such as technology readiness levels and business-case criteria such as the expected return on investment and market readiness. A comment from UTIL demonstrates knowledge-sharing mechanisms and the use of business cases for transition from exploration to exploitation:

[Experts from the innovation lab] *nurture them through a process of developing the idea out in something that looks like the design of a solution that can then be pushed into more of a traditional project landscape. [When ready for the transition] you need to develop a business case. You're talking about technology enablement that's costing in the millions. You're also talking about lots of risks around commercial regulatory and stuff. It's a business case. It's a big business case.* (U2)

Increases in explorative innovation activities and integration activities were widespread across all samples, and all of the case organisations reported at least two of these three main types of explorative innovation initiatives (labs, hubs and units for innovation), and all exhibited multiple integration mechanisms. Corporate cultural programs for shifting the mindset to embrace innovation were also reported in all but one of the organisations. Finally, all the organisations reported shorter term initiatives such as showcases, hackathons and innovation 'challenges' that provide wider exposure and access to exploration activities.

### **Summary of findings**

The six case organisations, although from diverse industries, reported similar drivers for innovation, with increasing levels of change prompting changes in their governance of innovation. All of the cases emphasised the tension between flexibility and formality, and the desire to find the 'right' level of governance to support innovation. The 'right' innovation approach is context dependent, and all the case organisations have implemented and strengthened 'dual' approaches to innovation. Changes in governance are recent and ongoing, highlighting the continual challenge in finding a 'sweet spot' between formality and flexibility in governing innovation, and in finding ways to best integrate explorative and exploitative innovation. The discussion explores the challenges and responses from the lenses of paradox and contingency theory and relates the findings to ambidexterity research.

## DISCUSSION

Our findings demonstrate that a strong impetus for innovation is driving adjustments to project governance approaches at the case-study organisations. Tensions between formality and flexibility in governance were shown to be aligned with the need to maintain effective exploitative innovation while improving explorative innovation capabilities. To address this tension, a dual-mode of project governance was recently instituted or strengthened at each case organisation. We identified four types of integration mechanisms that show how explorative approaches interact with and provide benefits for exploitation and commercialisation at the case organisations.

We draw upon concepts of paradox, contingency and ambidexterity to analyse our findings on the tension between formality and flexibility, the factors that influence governance choices, and the dual-mode of governance discovered at each of the case organisations. Although the literature points to the need to choose between applying a contingency perspective or a paradox perspective (Lewis & Smith, 2014), we find evidence that both work together in innovation governance. The struggle the case organisations report in finding the ‘sweet spot’ in innovation governance signals a nuanced and complex situation that is suited to analysis from the paradox perspective, while contingency approaches provide clear guidance for project selection or transition readiness. By employing both perspectives, we adopt a shift in perspective aligned with a paradox perspective (Smith & Lewis, 2011); we move from an ‘either/or’ mindset to a ‘both/and’ mindset in our analysis of the cases.

Contingency theory is often used to explore or explain how governance can best support different specific types of projects (Joslin & Müller, 2015). The goal of such contingency-based studies is to identify which approaches to governance will provide superior results when applied to projects with certain characteristics. Applying contingency approaches is suited to

direct relationships – for example, in our findings that project cost is the main context that guides the level of the decision-making body for project approvals. We also show that contingency perspectives are used to ensure fit between project characteristics and the innovation approach. For example, in UTIL, complexity, degree of innovation and other factors determine whether a project fits within the innovation lab.

Paradox theory is positioned as an alternative to contingency theory that is able to guide organisations to resolve the paradox facing organisations in modern, complex and dynamic environments (Lewis & Smith, 2014). A paradox involves “contradictory yet interrelated elements that exist simultaneously and persist over time” (Smith & Lewis, 2011, p. 382). The tensions between formality and flexibility in governance revealed in our findings are related to the tensions between exploration and exploitation activities. These tensions represent paradoxical situations where organisations need to embrace both sides and manage transitions and interrelationships; while contradictory in some ways, exploitation and exploration also have many commonalities and there are benefits in integration and cross-fertilisation of knowledge and experience (Papachroni, Heracleous, & Paroutis, 2015; Raisch, Birkinshaw, Probst, & Tushman, 2009). Contingency perspectives look for a direct ‘context-to-fit’ relationship, and do not provide sufficient nuance to effectively guide the management approach to resolve the tension between exploration and exploitation (Smith & Lewis, 2011). However, rather than turn away from contingency approaches when using a paradox lens, we adopt both perspectives and find that contingency approaches are valuable for project decision making within an overarching ambidexterity framework guided by paradox theory. We propose that governance approaches to innovation are best guided by paradox principles at the portfolio level, while guidance through contingency principles is appropriate for selecting governance approaches for individual projects.

Ambidexterity concepts have long been associated with management approaches for simultaneously pursuing paradoxical tensions (Andriopoulos & Lewis, 2009; Papachroni et al., 2015), such as the tension between formality and flexibility (March, 1991). Research on ambidexterity in project environments has included project-level (Eriksson, Leiringer, & Szentes, 2017; Leybourne & Sainter, 2012; Liu & Leitner, 2012; Turner, Maylor, & Swart, 2015) and portfolio management perspectives (Linhart, Röglinger, & Stelzl, 2019 forthcoming; Petro, 2017). Portfolio management governance approaches have a dual role: creating the structures to support both exploration and exploitative projects, and ensuring the right mix of projects within the portfolio. Without such oversight, ‘incrementalism’ can result, where exploration projects are rarely funded as decision makers steer away from the higher level of risk and longer timeframes (Levinthal & March, 1993; March, 1991).

Organisations develop ambidexterity in a number of ways. Three commonly identified approaches are structural ambidexterity (using separate units, often in separate locations), temporal ambidexterity (separation by time) or contextual ambidexterity (where the structure and context allow individuals to choose when and where to explore or exploit) (O'Reilly III & Tushman, 2013; Pellegrinelli, Murray-Webster, & Turner, 2015; Turner, Swart, & Maylor, 2013). These approaches are not mutually exclusive and, although our findings indicate that the governance approaches in the case organisations primarily create structural ambidexterity, we also observe temporal and contextual ambidexterity.

Structural ambidexterity is generally characterised by the co-existence of smaller, flexible units for exploration, and larger units with more rigid processes for exploitation (Benner & Tushman, 2003). Such structural ambidexterity is clearly demonstrated in our findings about the ‘dual mode’ of governance: the creation of units, hubs and labs for explorative innovation to sit alongside established exploitative in the large case organisations. We also find temporal ambidexterity in our cases, for example, when people share their time



between business areas (exploitation) and innovation labs or units (exploration), or when projects move from explorative to exploitative units during their lifecycle (see transition mechanisms 1 and 2 in Table 3). Finally, an element of contextual ambidexterity is also evident at COMM and SYS, where individuals choose whether and when to work with the innovation labs and hubs. Within the ambidexterity framework, we also find that contingency approaches take into account factors such as project size, complexity and stage to efficiently deploy projects and ideas into the best area for their effective development.

Guided by the paradox perspective, we also acknowledge the importance of integration and cross-fertilisation of knowledge and experience between exploitative and explorative endeavours. Addressing the call for research into the mechanisms underpinning achievement in ambidexterity at the project level (Turner et al., 2015), we have identified four mechanisms for integration in Table 3. Such mechanisms have been shown as an important mediator in the relationship between the structural separation and the ability for an organisation to achieve ambidextrous outcomes in a study involving 230 survey responses (Jansen et al., 2009). Another large-scale study, of 122 organisations, reveals that the synergistic or combined effect from linkages between explorative and exploitative innovation is more important than the degree to which each are used in large organisations with strong resources like the ones in our study (Cao et al., 2009). A multiple case study of seven large organisations found five types of transition modes that enabled movement from exploration to exploitation and operations (Gassmann, Widenmayer, & Zeschky, 2012). These studies and others underpin two reasons why integration mechanisms are particularly important for project- and portfolio-level governance at the organisations in our study: (1) the transition from explorative innovation to exploitative innovation is essential for business value creation – clear paths enable effective transition (Gassmann et al., 2012; Güttel & Konlechner, 2009); and (2) integration mechanisms enable these organisations to derive benefits such as new knowledge and skills from

exploration efforts, providing insights that may enhance the exploitative efforts that underpin most of their project activity (Cao et al., 2009). The integration mechanisms identified in this study address both aspects. Integration mechanism 1 in Table 3 focuses on the transition from exploration to exploitation, while mechanisms 2 and 3 build capability for exploration and exploitation through integration, and mechanism 4 enables transition as well as capability building.

Our findings provide evidence that governance of innovation is a complex and evolving endeavour. Tensions that could be seen as contradictory and constraining can become forces for increased capability following paradox principles. For large organisations, such as those in our cases, we highlight the importance of governing innovation in a way that builds synergy between exploitation and exploration capabilities. Integration mechanisms are important for the governance of innovation through projects due to their ability to build knowledge and capability and enable smooth transition from exploration to exploitation and commercial gain.

### **Limitations and implications for research**

While the diversity of industries represented in our sample of cases enhances generalisability to some degree, this study was limited to large successful organisations in one region (Australia), and therefore may not represent other types of organisations or regions. In addition, the findings are based on themes that emerged from a broad-ranging explorative study; a more targeted study could provide further depth and focus.

Future researchers could focus on the mechanisms that integrate explorative and exploitative innovation, building on the four mechanisms observed in this study. This study reveals the relatively recent initiation and strengthening of exploration initiatives within large formally-governed organisations but was not able to evaluate the overall impact of these

initiatives. Future studies may investigate whether and how such initiatives are aligned with benefits.

The level of governance could be another area of focus for future studies. Further studies could focus on one level (project, program or portfolio) and/or focus on specific differences in governance approaches between the levels in order to gain a more nuanced understanding of the relationship between governance, innovation and projects.

Finally, there are implications for future research from our demonstration of how paradox principles can work with contingency principles to analyse and understand project- and portfolio-level governance. We show how contingency approaches are effective for project-level decisions within an overarching ambidexterity framework guided by paradox perspectives. Future studies may benefit from embracing both principles rather than choosing one or the other.

### **Implications for practice**

Recognising the paradoxical nature of the tension between formality and flexibility in project- and portfolio- governance will guide organisations to effectively develop ambidextrous approaches to provide the best overall innovation outcomes. The paradox lens will enable managers to ensure that explorative and exploitative innovation processes work together, rather than view them as isolated choices. Within the ambidexterity framework, our research suggests that managers pay attention to context in order to select the appropriate approach for a given project and point in time. Our findings also provide examples to support organisations in developing governance frameworks that provide clear guidance for managing transitions from explorative to exploitative innovation and that enhance employee capabilities for explorative and exploitative innovation through activities such as forums for learning from experts, cross-fertilisation through movement of people, and wider awareness-building activities.

## CONCLUSION

We report findings on the development of ambidextrous capabilities that have emerged as part of an exploratory study of the governance of innovation in the management of projects. Tensions between flexibility and formality in project governance reflect underlying tensions between the need to maintain exploitative innovation while enhancing explorative innovation to stay competitive in modern dynamic project environments. We contribute to theory by demonstrating how paradox and contingency perspectives work in combination to analyse and understand these tensions, and how organisations respond and adjust project governance structures. We identify four integration mechanisms for managing across and between exploration and exploitation; paradox perspectives suggest that such integration mechanisms improve organisational ambidexterity by cross-fertilising knowledge and ensuring smooth transition between exploration and exploitation. These findings contribute to practice by demonstrating how project governance can support ambidextrous innovation capability and by providing examples of mechanisms for integrating exploratory and exploitative project governance modes. Governing innovation in this way acknowledges the paradoxical tensions inherent in innovation endeavours and aims to harness that tension to create superior innovation capabilities to address the imperative to innovate.

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